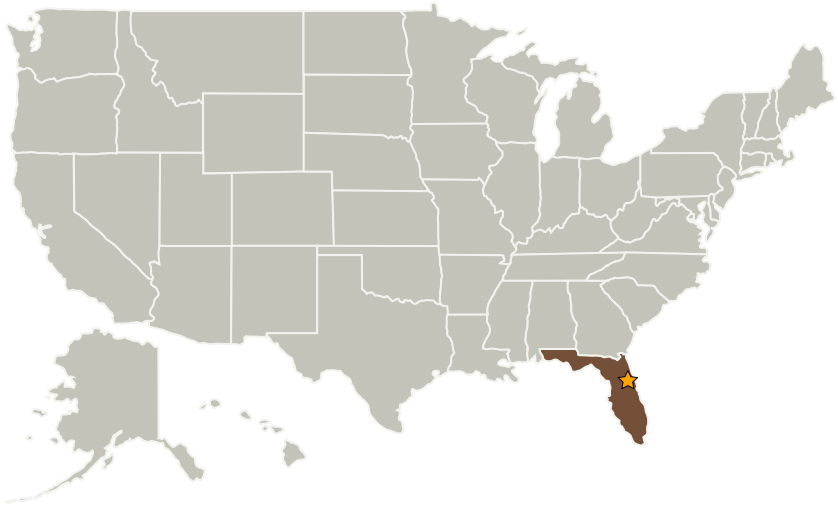
Range Surveillance Using Radio Interferometry and TDOA Techniques, Phase I

Completed Technology Project (2006 - 2006)

Project Introduction

The proposed innovation will utilize a small network of remote sensors to perform Radio Interferometry (RI) and Time Difference of Arrival (TDOA) techniques to survey, identify and locate Radio Frequency (RF) energy signatures within a given geographic area such as a launch range or other strategic area. The survey mission will use radio interferometry techniques to create RF "images" of the surveyed area. These images will show the locations of all RF activity within an area. While an area is secure, a set of images will be captured and averaged to establish the nominal RF baseline for that area. Once the baseline is established, real-time RF surveys will be instantly compared to the nominal baseline to detect the existence of RF spectral anomalies. The TDOA and RI techniques used to establish the RF images will determine the precise location of any spectral anomaly source so that it can be quickly and cost effectively identified and mitigated.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Kennedy Space Center(KSC)	Lead Organization	NASA Center	Kennedy Space Center, Florida
Soneticom, Inc.	Supporting Organization	Industry	West Melboune, Florida

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Kennedy Space Center (KSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations
Florida

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  - TX05.2 Radio Frequency
    - TX05.2.3 Atmospheric Characterization and Mitigation